IV. RESULTS AND DISCUSSION

E. General Overview of The Study

2. Profile of Indonesia Potato

b. Harvest Area, Potato Production and Potato Productivity

Potato is a commodity that has the second largest contribution to national vegetable production. The area of Indonesian potato harvest has increased in 2012-2014 from 65,989 Ha to 76,291 Ha or increased by 10,302 Ha. While in 2015-2016 the area of Indonesian harvest decreased from 66.983 Ha to 66.450 Ha or decreased by 0.80%. Increased land area used for potato vegetables is strongly influenced by the increase in national needs.

Table 1. Potato Harvest, Potato Production and Potato Productivity.

Year	Potato Harvest (Ha)	Production (Tons)	Potato Productivity (Tons/Ha)
2012	65.989	1.094.232	16,58
2013	70.187	1.124.282	16,02
2014	76.291	1.347.815	17,67
2015	66.983	1.219.270	18,2
2016	66.450	1.213.038	18,23

Source : Badan Pusat Statistik dan Direktorat Jenderal Hortikultura.

Potato production has increased in 2012-2014 from 1,094,232 tons to 1,347,815 tons, this increase is due to the high harvest area in various provinces in Indonesia so that national potato production goes up. However, in 2015-2016 Indonesia's potato production decreased from 1,219,270 tons to 1,213,038 tons or decreased by 9.54%.

Potato production ranks second by contributing 1,347,815 tons of production or about 11.31 percent of total national vegetable production. The largest potato production center is also located in Java Island with production of 745,817 tons or about 55.34 percent of total national potato production. The largest potato producing province is Central Java with 292,214 tons or about 21.68 percent of all potato production in Indonesia, followed by West Java and East Java. Meanwhile, the largest potato-producing province outside Java is Jambi, with production of 191,890 tons or about 14.24 percent of total national potato production, followed by North Sulawesi.

F. Description of Research Variables

5. Indonesian Potato Consumption Year 1994-2015

Consumption of potato as food grows rapidly, especially in Asia, although it is still smaller than 20 kg / capita / year. Along with the increase in income, consumers tend to diversify the food menu from the dominance of cereals shifted to the composition of the food containing more vegetables, including potato. The consumption growth of processed potato also opens up opportunities for expansion of potato production. In many countries, factors such as urbanization, income generation, tourism, women's participation in employment and advertising promotion by fast-food multinational corporations will increase consumption of potato relatively quickly.

Table 2. Indonesian Potato Consumption Year 1994-2015

Year	Consumption (tons)
1994	728.913
1995	867.332
1996	962.677
1997	733.904
1998	870.289
1999	809.743
2000	868.392
2001	749.834
2002	822.849
2003	931.265
2004	1.004.496
2005	945.530
2006	939.939
2007	933.854
2008	975.466
2009	1.112.689
2010	1.007.221
2011	1.018.910
2012	1.093.392
2013	1.053.503
2014	1.117.701
2015	1.143.057

Source: Food and Agriculture Organization (2017).

Based on Food and Agriculture Organization (FAOSTAT, 2017) data, from 1994-2015, potato consumption per year in Indonesia showed fluctuating tendencies (Table 9). In 2001-2004 potato consumption had increased, but then there was a decline in 2005. In the period 2005-2007 domestic potato consumption decreased from 945,530 tons to 933,854 tons. This is because potato are still considered only vegetable ingredients, not a staple food and has not been cultivated widely into snack foods.

With the increasing number of foods that use potato as its main ingredient, then since 2008 the consumption of potato began to show improvement again. With the total population of Indonesia as much as 230.205 million people then the consumption of Indonesian potato in 2008 reached 975,466 tons.

6. Indonesia Potato Production Year 1994-2015

Based on the area of higher potato harvest and the amount of potato productivity in Indonesia, the Government began to increase the number of national potato production so as to fulfill domestic potato consumption even though only a few percent of domestic potato consumption demand and of course the government keep importing potato from other countries to cover consumption shortage increasing domestic potato.

During the period of 1994-2015 potato production also tended to increase in line with the development of its harvested area (Table 10). If in 1994 Indonesian potato production was 877,146 tons then in 2009 the production of potato has reached 1,176,304. A fairly large percentage of production growth occurred in 2002-2009. In 2011 the production of domestic potato decreased significantly by 955,488 tons. However, in the year 2012-2015 domestic potato production experienced a steady increase.

Table 3. Indonesian Potato Production Year 1994-2015

Year	Potato Production (tons)
1994	877.146
1995	1.035.260
1996	1.109.560
1997	813.368
1998	998.032
1999	924.058
2000	977.349
2001	831.140
2002	893.824
2003	1.009.979
2004	1.072.040
2005	1.009.619
2006	1.011.911
2007	1.003.730
2008	1.044.492
2009	1.176.304
2010	1.060.805
2011	955.488
2012	1.094.232
2013	1.124.282
2014	1.347.818
2015	1.219.277

Source: Food and Agriculture Organization (2017).

7. Income Per Capita Year 1994-2015

Income per capita is a determinant factor of the small imports made by the state. Imports can occur due to increased domestic incomes so that the ability of the population to buy imported goods rose (Sukirno, 2008). Which means that import depends on the national income level of the country, the higher the national income the higher the demand of an imported goods.

Table 4. Income Per Capita Year 1994-2015

Year	Income Per Capita (USD)
1994	912
1995	1.026
1996	1.137
1997	1.064
1998	464
1999	671
2000	780
2001	748
2002	900
2003	1.066
2004	1.150
2005	1.263
2006	1.590
2007	1.861
2008	2.168
2009	2.263
2010	3.125
2011	3.648
2012	3.701
2013	3.632
2014	3.500
2015	3.346

Source: World Bank (2017)..

Based on data from the World Bank (2017) shows that per capita income from 1997-2002 decreased this because in 1998 Indonesia experienced a tremendous economic crisis, Indonesia's economy weak because of unstable politics. Then in 2003-2015 economic growth began in a stable condition and tends to increase. The peak of economic growth occurred in 2012 amounted to 3,701.

8. Rupiah Exchange Rate Year 1994-2015

Exchange Rates may affect the price of foreign commodities in importing into the country. If the rupiah depreciates, the domestic

currency will weaken and the foreign currency will strengthen, causing exports to be increased and imports should be reduced. Where with the increase in dollar exchange rate, the consumer will buy less, so the supply of foreign manufacturers to import is reduced. If the dollar rate rises, then the import of potato will drop as demand decreases. While the dollar exchange rate decreases, the import of domestic potato will increase to meet domestic demand.

Table 5. Rupiah Exchange Rate Year 1994-2015

Year	Rupiah Exchange Rate
1994	2.160
1995	2.308
1996	2.383
1997	4.650
1998	8.025
1999	7.100
2000	9.595
2001	10.400
2002	8.940
2003	8.465
2004	9.290
2005	9.890
2006	9.020
2007	9.419
2008	10.950
2009	9.400
2010	8.991
2011	9.068
2012	9.670
2013	12.189
2014	11.865
2015	13.389

Source: Food and Agriculture Organization (2017).

Based on data from the Food and Agriculture Organization (FAOSTAT, 2017), in 1994-2001 the Rupiah exchange rate tended to

rise from 2,160 to 10,400. This increase is due to very high inflation due to the instability of the government at that time. Then in 2002 it declined to 8,940 this because in 2002 the Indonesian economy began to develop after the economic crisis in 1998 which caused the highest inflation. In the period 2002-2012 tend to rise and fall but not significant. The highest number occurred in 2015 amounted to 13,389.

G. The Result of Regression Analysis and Regression Test

5. Classic Assumption Test

The classical assumption test is performed to determine whether the estimation model has met the criteria of econometrics, in the sense that there is not a serious deviation from the assumptions that must be met in the Ordinary Least Square (OLS) method.

e. Normality Test

Normality test is used to determine whether the data in the variables to be used in this study normal or not. A good and feasible data in this study is data that has a normal distribution characterized by the same mean and standard deviation. Based on the calculation, the significant value of Jarque-Bera> 0.05 is 0.252 which means that the model is not deviated from the classical normality assumption and the data has been normally distributed.

f. Multicolinearity Test

Table 6. Multicolinearity Test

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
Consumption	0.024	651.6	10.70
Production	0.013	408.6	5.75
Income Per Capita	88.33	11.69	3.20
Rupiah Exchange Rate	6.248	14.77	1.64

Source: Data Proceed, 2018

The purpose of multicollinearity test is to test whether in the regression model found a correlation between independent variables. A good regression model should not occur correlation between independent variables.

Based on table 6, all independent variables based on VIF <10.00 indicate that there are no symptoms of multicolinearity.

g. Heteroscedasticity Test

Heteroscedasticity is a condition in which all the disorder factors do not have the same variant. Heterocedasticity causes the assessment of regression coefficients to be inefficient.

Table 7. Heteroskedasticity Test Glejser

Coefficient	T	Significant
Consumption	0.579	0.575
Production	-1.300	0.210
Income Per Capita	2.159	0.045
Rupiah Exchange Rate	-0.448	0.659

Source: Data Proceed, 2018

In the above table the significant value shows the number above> 0.05 then it can be said free of heterokedastisitas problem.

h. Autocorrelation Test

To find out whether this research model is affected by autocorrelation or not, the Durbin-Watson method is said to have no autocorrelation problem if the Durbin-Watson value is at du- (4-du) obtained from Durbin-Watson.

Durbin-Watson's value in this study is 1.911. Compared with the value of significant table 5% the amount of time series data here a number of 22 and the number of variables there are 4.Durbin-Watson value is 1.911 <u and <4-du then there is no autocorrelation.

6. Statistical Test Results

d. Coefficient of Determination R^2 Squared (R^2)

The coefficient of determination measures how far the ability of the model in explaining the variation of the dependent variable. This research model uses adjusted value R^2, in order to avoid bias to the number of independent variables included into the model because the more the number of variables included then the value of adjusted R2 will increase.

Based on the results of multiple linear regression found the number R^2 square 0.886. It can be interpreted that together independent variables in the form of domestic potato production, domestic potato consumption, per capita income and the rupiah exchange rate against US dollar can explain 88.6% of Indonesian potato imports in 1994-2013. The remaining 11.5% is explained by other variables outside the model.

e. F Test

F test is intended to test whether the independent variables together have a significant effect on the dependent variable. If the value of F statistic is greater than the F table value and the probability is less than 0.05 then all independent variables have an influence together on the dependent variable.

Because F arithmetic = 33.153 is greater than F table that is 3.08 and sig value. 0.000 is smaller than probability value 0.05 then all independent variables have influence together to the dependent variable.

f. t Test

The t test is intended to test whether the independent variable is partially significant to the dependent variable. If the statistical value t is greater than the value of t table or the probability is less than 0.05 then it can be said that the independent variable has a significant influence on the dependent variable. If greater than 0.05 then no significant effect on the dependent variable.

7. Multiple Linear Regression Test Result

After it is known that the data used is free of all classical assumption test that is normal distributed data, data free from multicolliniearity problem, data free from heterokedastisity problem, and data there is no problem of autocorrelation, then do double linear regression test.

Table 9. Multiple Linear Regression Test

	Coefficient	Std. Error	T	Significant
Variable				
Constant	-9509.73	64861.48	-0.146	0.8852
Consumption	0.665	0.157	4.211	0.0006
Production	-0.557	0.114	-4.858	0.0001
Income Per Capita	31.62	9.398	3.364	0.0037
Rupiah Exchange Rate	1.634	2.499	0.653	0.5219

Source: Data Proceed, 2018

Y'= -9509.73 + 0.665 – 0.557 + 31.62 + 1.634

8. Elasticity Test

To find out which variables are most influential, then elastisits are done. Elasticity can be seen from the coefficient of each independent variable. Based on table 9 in the research model using multiple linear regression known that the variable that has the greatest elasticity is income per capita that is equal to 31.62.

H. Discussion

5. Effect of Domestic Potato Consumption on Potato Import in Indonesia

Domestic potato consumption variables have a positive and significant effect on imported potatoes in Indonesia. This is in accordance with the hypothesis that potato consumption in Indonesia has a positive effect on potato imports in Indonesia. This is in accordance with the theory (Lindert, 2003) through research that says import follows real overall expenditure. More and more people are shopping for goods and services, then there is a tendency to shop from abroad.

6. Effect of Domestic Potato Production on Potato Import in Indonesia

Domestic potato production variables have a negative and significant effect on imported potato in Indonesia. This is in accordance with the hypothesis that potato production in Indonesia negatively affects the import of potato in Indonesia. This is in accordance with research conducted by Lastina and Setiawan (2014) which states that production does not significantly affect the import of kentag in Indonesia. This is because even though the production of goods in the country increases, but if the amount of domestic production is insufficient for the minimum reserve requirement, the government will keep doing import activities to meet the increasing needs of the population.

7. Influence of Per Capita Income on Imported Potato in Indonesia

The per capita income variable has a positive impact on potato imports in Indonesia. This is consistent with the hypothesis that per capita income positively affects the import of potato in Indonesia. This is in accordance with the study (Kamarulloh, 2016) which states that GDP has a positive relationship to the import of potato from Australia. Increased per capita income reflects an increasing public purchasing power and led to an increase in imports.

8. Effect of Rupiah Exchange Rate on Potato Import in Indonesia

Rupiah exchange rate variable has a positive effect on imported potato in Indonesia. This is in accordance with the hypothesis that the

rupiah exchange rate has a positive effect on the import of potato in Indonesia. This is supported by research conducted by (Lastina and Setiawan, 2014) states that exchange rates have no significant effect on imports. This is because the government will continue to import despite the depreciated rupiah exchange rate. The government does this to meet the needs of domestic potato. With the increase in the value of dollar against the rupiah will reduce the value of imported potato because the price of imported potato is considered more expensive. This is in accordance with the basic theory of the law of economic demand, if the price rises then the number of requests decreases.